

March 31, 1973

Dear Toby,

Some developments and explanations from last night's conversation:

1. topology and morphogenesis: "An embryonic field is, I am afraid, essentially a topological notion." His reference (Waddington's): Zeeman, E.C. (1965), Topology of the brain. In, Mathematics and Computer Science in Biology and Medicine, pp.277-292, London. Waddington's basic concept is the chreod, "a region of phase space characterized by an attractor time trajectory." Waddington is defining for biology a field concept for use "in connection with systems which exhibit some general integration of the future developmental pathways followed by the different subregions within the whole; for systems, that is to say, which exhibit some degree of 'regulation.'" A chreod is a pathway in a multidimensional space which "acts as an attractor for neighboring pathways." C.H. Waddington, "Fields and Gradients," Major Problems in Developmental Biology, 1966.

2. Joe has just been on the phone about fields in his novel, and the relations between the movement of Cartwright into a field that seems to him static, and his relations (relations of his private psychological field) to the psychological fields of others and to some comprehensive field (one version of which is the noosphere of Teilhard de Chardin, the "lasting articulate framework of thought") in for instance language and mathematics. I told Joe I'd send him a quotation relevant to these fields, and I'll put it here & send him a copy: I'd like to send the whole essay, "The Basic Concept of Hierarchic Systems," Hierarchically Organized Systems, Paul A. Weiss, N.Y., 1971: "Even where, in a cell, some relatively stable structural assemblies, such as fibers or membranes, might look at first sight like solid straws to which hopes for micro-mechanical structural backbones and partitions might cling, experience tends to show that quite the reverse is true, namely that those structures owe their existence to special local conditions of the dynamics of molecular interactions, which may prevent free assembly of molecular units in any but a given linear direction . . . or favor recruitment and planar arraying of selected molecular species along an interface..." 41242.

3. mathematics and arts: You sound half anxious to guard mathematics from misappropriation by artists and half pleased at the acknowledgement of math by artists, which few mathematicians seem to reciprocate. I expect you wouldn't object to Waddington using "topology"--yet why does he need it? What will be in topological analysis that is not in ordinary language?

4. The point of Dorothea's use of set theory takes us back over some familiar names, including Geoffrey Hartman, and his book, The Unmediated Vision. Early myth records an experience of the mediation of a contradiction (Lévi-Strauss blended with H. and H.A. Frankfort), an experience of I-Thou, a revelation of a spiritual continuum or transcendental continuum, overcoming the subject/object, self/world, me/not-me dichotomy. The myths which record the experience "perpetuate the revelation," but also mediate further experience, so that categories are imposed on experience derived not from one's own authentic experience, but derived from myth. Action is not immediate and spontaneous, a response to here/now, but ritualistic, where ritual cancels time/space and gives access to that continuum, with loss of immediacy. If one can throw out myth, and work at criticizing symbol and metaphor which support myth, and so is criticizing anything that mediates between self and world, then one is led to criticize spoken and written language as an interference, as an obstacle which looks transparent when we focus past it onto existence, but which is in fact warping, distorting, refracting, and in fact may be a mirror. When Duchamp uses puns he is rendering the window opaque, calling attention to language as mediator with its distortions. Notice:

"To celebrate her birthday she & her old man dined with Man Ray and spouse, & Marcel and his. During the conversation, entre poire & frommage, as they say, someone mentioned the ~~the~~ phrase, in english, 'drop dead'. They all had a good laugh over that for no very especial reason, even lingering on it. On parting Marcel embraces Nina (as she tells it) twice: one for politeness, a second for her birthday. An hour later phone rings. Marcel's old lady with the news. Duchamp, while brushing his teeth, had 'dropped dead.' She even said it in English..." *

(personal correspondence from Louis Stephen Asekoff)

If the desire is for an "unmediated vision," then spoken-written words may interfere, and blank pages and silences may be indicated. Language flinches. The methods of thought in language so qualify or modify or ruin the object of thought that I might prefer not to think about it. The untrustworthiness of language as a map of existence leads to the experiment with mathematical mappings. The meaning is thus not itself mathematical; not mathematical solutions, but a quality of mathematical thought, transparency, helps to solve the aesthetic problem of knowledge of the external world not crimped by words.

*one hopes he was looking in the mirror...

5 objectivity: an advantage of mathematical ideas is that they constrain the imagination from fantasy, as Hardy suggests in those quotations I sent you. This objectivity is a post-Cartesian, anti-solipsist, anti-surrealist value.

6 Artists are quite explicit in these matters. Mel Bochner writes about Dorothea's work, "it has broken with the use of language as representation." Why break with language is the question whose history I touched on earlier. The experiment is toward a visual experience unmediated by verbal language in order to get at experience as ordered fluency. Instead of submission to undifferentiated process of self and existence, she introduces not the intervals of language, but the intervals imposed on thought by its own deepest structure, or imposed on the mind by its own rational capacities. Dorothea wrote to me:

There is a position which constantly seeks and knows and is beyond, though interdependent with, organizational thought and retinal experience. There is edge to this position. I cannot begin to work and know this position right off. Through accumulation, learning, defining, and redefining, the position acknowledges itself in ever changing terms. It is difficult to achieve and results in beauty. By beauty I mean that which touches me deeply in a way that only art can effect.

Her "organizational thought and retinal experience" is the problem of "unmediated vision," or as Mel starts his "Note on Dorothea Rockburne," "If we ask how it is that ideas and objects intersect and what is the nature of the reciprocity between thought and sight we are asking the essential questions to which Dorothea Rockburne's art addresses itself." "The works do not become objects but instead record the experience of how ideas infiltrate practice." Art Forum, March, 1972. It's a question of the source of the intervals which perception introduces into experience.

7 field: Dorothea's "organizational thought" and her movement in relation to "a position which constantly seeks and knows and is beyond" connects with "Fields and Gradients," and Major Problems in Developmental Biology, and Hierarchically Organized Systems.

8 structuralism: I was referring to Lévi-Strauss, "The Individual as a Species," The Savage Mind, but the reference to computers is p.89, "Systems of Transformations."

9 Phoebe's new kitten is named Continuum.

10 "The goal of all structuralist activity, whether reflexive or poetic, is to reconstruct an 'object' in such a way as to manifest thereby the rules of functioning (the 'functions') of this object." R. Barthes, "The Structuralist Activity," Critical Essays.

11 Wordsworth wrote about a dream in which he was offered two books, one Euclid's elements, the other a poem, except that they weren't books, they were a stone and a shell, and the other figure is Don Quixote but also an Arab, and Wordsworth chose the shell and oracular, rhapsodic, ambiguous and dream-like poetry, over Euclid. One tends to prefer the stone to the dream.

12 One section of Love & Napalm is called "Marriage of Freud and Euclid."

Enough. Birkhoff was (is) the name I couldn't think of.
Write about mathematics & the arts and you get more letters.

Love,

Bill